Attachment A-1: Howard Wesoky's Welcoming Remarks

Welcome and thanks for participating in the Second Workshop on NASA's Environmental Compatibility Research. I'm Howard Wesoky, Team Leader for Environmental Compatibility Assessment in the NASA Headquarters Office of Aeronautics and Space Transportation Technology.

Having lived in Cleveland for 23 years before moving to DC, I can promise that you will enjoy this often unfairly maligned city. You may not be able to get a ticket for an Indians baseball game or for the world famous Cleveland Orchestra. But make sure that you see the Rock 'n Roll Hall of Fame and eat in a restaurant in the Flats along the now clean and fireproof Cuyahoga River. And, equally important, tour the NASA Lewis Research Center on Thursday afternoon. Lewis is important to Cleveland and, as NASA's center of excellence for aeronautical propulsion research and technology, also important to our nation.

It's good to see that most of those who attended the first Workshop in Atlanta have chosen to join us again. In a few minutes, Adina Cherry will tell newcomers how information from Workshop I can be accessed on the World Wide Web. I hope that everybody who attended Workshop I has been able to review that material. Many thanks to the participants who provided their earlier presentations to Adina, and I encourage new participants to do the same.

I'd like to just briefly review where we've been so far in the workshop process. Recall that we are continuing a path begun with the March 1997 publication of NASA's "Aeronautics & Space Transportation Technology: Three Pillars for Success." That document included "stretch goals" for aircraft noise and emissions:

- Reduce emissions of future aircraft by a factor of three within 10 years, and by a factor of five within 20 years, and

- Reduce the perceived noise levels of future aircraft by a factor of two from today's subsonic aircraft within 10 years, and by a factor of four within 20 years.

And, as stated in the "Three Pillars" brochure, which is available again here in Cleveland, both of these environmental goals have the requirement to be achieved without affecting safety or affordability.

NASA agency management has asked the Environmental Compatibility Assessment Core Team to assess the ability of current research and technology programs to achieve the noise and emissions goals, and to determine what additional effort may be required.

The ECoA Core Team Mission Statement"

In collaboration with carriers, manufacturers, academia and other government agencies, NASA will develop robust technology options with the objective that environmental issues do not constrain the growth of air transportation.

We began the workshop process by suggesting that the following questions would be addressed:

1. What are the impacts of aviation noise and emissions on the environment?

2. How do you believe those impacts may affect the growth of aviation?

3. Must the growth of aviation lead to increased environmental impact?

4. What is the relationship of NASA's noise and emissions goals to aviation's impact on the environment?

Before we leave Cleveland, I'll return to these questions and attempt to summarize our progress in seeking answers.

At Workshop I, we also discussed the 1995 White House report which suggested that environmental issues are likely to impose the fundamental limitation on air transportation in the 21st century. And, in response, we asked two other questions which we attempted to answer while in Atlanta. Those questions are shown here along with my very summary interpretation of your answers.

- What are the environmental issues that are likely to impose fundamental limitations on aviation's growth?
  - Growth in demand
  - Practical metrics
  - Cooperation of regulators, technologists and public interest
  - Emissions
    - Local air quality, global climate change, ozone layer protection
    - Tradeoffs among emittants
  - Noise
    - Appropriate goals, e.g., "floor" vs. "background"
    - Ability to predict subjective effects, e.g., single event vs. average
- What are the technical challenges faced in eliminating the fundamental limitations to aviation's growth?
  - Invention/alternatives
  - Application of technology, e.g., retrofit
  - Affordability
  - Capacity issues
  - Research infrastructure

You may not agree with this summary, particularly if you are concerned about very specific noise or emissions issues. My good friend Howard Aylesworth more succinctly summarized Workshop I with only three points:

1. The objective is <u>not</u> to limit aviation growth,

2. everyone must **"**pay some of the freight;**"** and

3. acceptable levels of noise and emissions must be determined.

We'll give each of you a chance to further consider these matters in tomorrow's breakout sessions when we attempt to move the agenda towards recommendations for research and technology activities.

But now let me ask Frank Murray to again chair the Workshop and to discuss our agenda in detail. For newcomers, Frank's credentials are on the Web in my Atlanta introductory remarks. He's had substantial experience in dealing with energy and environmental issues as staff director for a congressional committee, as a lecturer at Georgetown University, and in the private sector. As before, I'll rely on Frank to guide us for the next two and a half days while I try to concentrate on listening to you.